KANSAS

Kathleen Sebelius, Governor
Roderick L. Bremby, Secretary

DEPARTMENT OF HEALTH
AND ENVIRONMENT

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Division of Environment

June 13, 2008

Jerome E. Cibrik, P.G.
Union Carbide Corporation - Remediation Technology Section
P.O. Box 8361
3200/3300 Kanawha Turnpike
South Charleston, WV 25303

RE: KDHE Response to May 2008 CH2M-Hill, Technical Memorandum, Unison Transformer Services, Inc. Site, Fairfax District, Kansas City, Kansas, Consent Order # 97-E-0036

Dear Mr. Cibrik:

The Kansas Department of Health and Environment (KDHE) has completed review of the above referenced document submitted by Union Carbide Corporation (UCC) for the Unison Transformer Services Site located at 3126 Brinkerhoff Road, Kansas City, Kansas. The status report document was prepared on behalf of UCC by CH2M Hill and was received February 14, 2008. KDHE has the following technical review comments. Pleases provide written response within 30 days of receipt of this letter.

KDHE Comment #1: On page 2-1 Unison states that both the air-sparge (AS) and soil vapor extraction (SVE) wells were off line for a majority of the reporting period due to high ground water elevations. KDHE recognizes the technical difficulties presented in this scenario. However, KDHE is also keenly interested in knowing what if any contingencies can be put in place to insure adequate containment of site contaminants.

CH2M-Hill Response: "Based on pneumatic slug tests conducted in September 2007, the seepage velocity ranges from 18 to 38 feet per year. Over a three-month period, the estimated distance of groundwater migration at the seepage velocity ranges from 4.5 to 9.5 feet. This distance is within the approximate 60 foot diameter of influence of the AS [ED Air Sparge] wells. Therefore, it is unlikely that in a 3-month period that groundwater (not actively treated within the area of influence of the onsite AS well network) would pass through the diameter of influence of the AS wells along the downgradient edge of the site and migrate offsite. In addition, the low levels of site contaminants observed onsite (especially the levels near the downgradient boundary – see figure 4-2) support the conclusion that there is little opportunity for

continued off-site migration to occur at this time."

The response meets KDHE objectives.

KDHE Comment #2: There is high variability in ground water flow direction from quarter to quarter that is left unexplained in this report (please refer to the potentiometric surface map from quarters 2 and 3, 2007). Because of the overall context of the site, situated within the Fairfax Industrial District, it would be highly useful if in future reports Unison included other pertinent ground water evaluation measurements including for example: ground water pumping and/or production wells in and around the Unison [ground water] plume; precipitation data for the reporting period; and river stage data.

CH2M-Hill Response: "With the exception of the production well at the K.C. Abrasives facility, UCC has no knowledge of other wells within the immediate area of the onsite and offsite monitoring well networks. The K.C. Abrasives well cannot be gauged, and the well is screened in bedrock rather than the alluvial sand deposits in which the UCC wells are screened. As part of the offsite remedy that will be proposed to KDHE, the offsite monitoring well network will be expanded to improve the understanding of the local potentiometric surface and evaluate changes in groundwater concentrations within and outside the proposed target treatment zone. As requested, UCC will include precipitation and river stage data in the quarterly status reports to provide a better understanding as to why the potentiometric surface may vary from quarter to quarter. This data will be added. Starting with the first quarter 2008 report."

The response meets KDHE objectives.

KDHE Comment #3: Unison states that since there are pumping influences onsite (the AS and SVE wells) development of an on-site potentiometric surface map would not represent ground water flow conditions. KDHE concludes that Unison should consider developing ground water flow maps for on-site wells as a demonstration that in addition to source reduction, source containment is being maintained.

CH2M-Hill Response: "Reduction and/or elimination of chlorinated VOC concentrations, rather than containment, is the ultimate goal for the AS/SVE system. An onsite potentiometric surface map for this remediation system would not add value in showing containment. Trends in groundwater concentration data from onsite and offsite wells is the best means of evaluating whether the remediation system is adequately reducing and preventing uncontrolled offsite migration of the VOC plume. In addition, the extremely flat gradient and limited aerial extent of the onsite plume has historically precluded generation of meaningful potentiometric surface maps. Less than a couple tenths of a foot of difference between wells across the site is

essentially un-mapable. Previous discussion with KDHE (Dave Walsh) regarding this subject resulted in elimination of the on-site potentiometric surface maps and replacement with a site map that simply showed the GW elevation for each well."

KDHE finds the response adequate. However, as is consistent with previous KDHE technical review comments on the various project documents, the immediate goals include: maintain containment thus minimizing additional off-site migration and provide for source removal.

KDHE Comment #4: Please include total depth [of well] information in table 4-1.

CH2M-Hill Response: "The total well depth information will be provided in Table 4-1 beginning with the first quarter 2008 status report."

The response meets KDHE objectives.

KDHE Comment #5: KDHE concludes it would be useful to include a cross sectional depiction of the on and off-site ground water plume broken down into the constituent parameters (i.e. TCE, CIS-1,2-DCE, etc.) This is a repeat request from previous status reports.

CH2M-Hill Response: "A cross section for the offsite groundwater plume will be provided in the offsite interim measures evaluation study report currently being prepared. These cross sections are based on a denser data set from ground water confirmation borings and monitoring wells sampled in September 2007 that is available during quarterly ground water sampling events. The expansion of offsite monitoring well network discussed in response to Comment 2 may provide a sufficient enough data density for the generation of these cross sections figures on a quarterly basis."

The response meets KDHE objectives. However, KDHE concludes that the data density derived from the sampling points listed in table 4-3 is sufficient to comply with the technical review comment. Therefore, KDHE requests ground water contaminant concentration cross sections (based on screen intervals) consistent with the technical review comment in future status reports.

KDHE Comment #6: There appears to be unique perturbation occurring with well 87-D. Please provide an explanation for the highly inconsistent depth to ground water data with respect to the other Unison wells in and around this well.

CH2M-Hill Response: "UCC proposes that the total depth measurements and comparison to

well install records for this monitoring be conducted as well as redevelopment and inspection for integrity. This can be completed during the future offsite field efforts."

While the response meets KDHE objectives any anomalous data noted should be fully addressed in future status reports.

KDHE Comment #7: The disc including the analytical data sheets was inadvertently omitted from this report. Please provide a replacement copy of the disc for these analytical data sheets.

CH2M-Hill Response: "The replacement disc will be submitted along with a hard copy or this technical memorandum in the mail to KDHE by May 23, 2008."

The response meets KDHE objectives.

KDHE does not require resubmittal of this document. If you have comments or questions I can be reached at johncook@kdhe.state.ks.us or (785) 296-8986.

Sincerely,

John K. Cook

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JKC/mm

C: D. Ross -> File: C4-105 70168 1.0
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